

OBITUARY NOTICE OF FELLOW DECEASED.

In the death of Mr. CHARLES WATKINS MERRIFIELD, mathematical science generally, but particularly those branches which relate to nautical matters, have suffered great loss. Since the deaths of Rankine and William Froude, no one has passed away whose presence will be so greatly missed at the annual gatherings of the Institution of Naval Architects, and that of Section G of the British Association.

Mr. Merrifield, although essentially a mathematician, and even a pure mathematician, was one of the few to whom the revolution from the rule of thumb to that of exact science in naval architecture was immediately due. The part which he undertook in this movement, although of the greatest importance, is from its nature unlikely to attract notice. And for this reason, perhaps, as well as from the labour involved, as much as its inherent difficulty, was much neglected at the time when Merrifield commenced his work.

It is a common complaint against pure mathematicians, that while they are continually pursuing, or being led by, this subject into abstractions which lie outside the region of experience, they neglect to develop those branches relating to matters of experience sufficiently to render them useful as means of calculation.

Merrifield was an important exception to this rule. He held himself free from the fascination of any line of abstract reasoning which his work may have exposed, and devoted his time and energy to the not less difficult, but to many less interesting task of increasing the usefulness of mathematics by the development and adaptation of methods of application, as well as by the extension of mathematical tables which reduce the amount of calculation (otherwise often prohibitory) immediately necessary for any particular application. To this work he mainly devoted the time at his disposal throughout his scientific career, commencing in 1858; and in 1880, at the request of the Committee of Section A of the British Association, he drew up a report on the entire subject at which he had mainly been working, entitled "Report on the present State of Knowledge of the Application of Quadratures and Interpolation to actual Data." This is published in the British Association Report for 1880, and is in itself a work of great and, in all probability, lasting importance.

But it is not only as chiefly on account of his mathematical work that the loss occasioned by Mr. Merrifield's death will be felt by those who were accustomed to his presence at discussions of scientific matters. His exact and wide knowledge of the circumstances of

applied mechanics, as well as the breadth of his reading and the extent of his knowledge as to what had been done in the way of applying mathematics in almost every branch of mechanics, but particularly in matters connected with hydraulics, together with the interest which he took in, and the ease with which he apprehended, all abstruse matters that might be brought forward, rendered his presence as between an author and his audience almost equivalent to that of a judge in court.

The number of Committees of the British Association on which he sat is some evidence of the number of subjects in which he took deep interest. He held decided though liberal views concerning the best method of education; these he expounded in his address, as President of Section G, at Glasgow, which is printed in the British Association Report, 1876, and is well worthy of the most careful consideration. He strongly urges more language and less grammar, more drawing and less geometry; or, as he himself expresses it, more marching and less drill.

For the following details the author of this memoir is mainly indebted to a notice which appeared in "Nature," from the pen of Mr. J. W. L. Glaisher:—

Charles Watkins Merrifield was born at Brighton in 1827, and died at Hove on January 1st, 1884, in his fifty-seventh year. His education was, as he himself describes it in the address already referred to, mainly classical and legal. He was called to the bar; but had previously accepted an appointment in the Education Department of the Privy Council Office, from which he was promoted to the office of Examiner. His first published paper was "On the Geometry of the Elliptic Equation," in 1858, and was speedily followed by papers on the calculation of elliptic functions, two of which were published in the "Philosophical Transactions." In 1863 he was elected a Fellow of the Royal Society. His mathematical work related to the calculations used in naval architecture, and he became a Member of the Royal Institute of Naval Architects, and contributed a paper to their "Transactions" in 1865.

In 1867 the Royal School of Naval Architecture and Marine Engineering at South Kensington was established, and at the request of the Government Mr. Merrifield accepted temporarily the office of Vice-Principal; and on the unfortunate death of the first Principal, Mr. Purkiss, Mr. Merrifield was appointed Principal. This office he held until, in 1873, the Institution was transferred to Greenwich, when he resumed his office of Examiner in the Education Department. His connexion with the School of Naval Architects added greatly to his previous interest in naval science. He published many papers on this subject in the "Annual" of the school, and in the "Transactions" of the Institute, of which he had become Honorary Secretary.

In 1869 he drew up for the British Association a report on the stability, propulsion, and sea-going qualities of ships; and although he retired from the post of Honorary Secretary of the Institute in 1875, when his services were recognised by a handsome testimonial, he continued regularly to attend the meetings.

He served on several important Royal Commissions, including one on the unseaworthiness of ships, of which the Duke of Edinburgh was President; and during the last few years of his life he frequently sat as scientific assessor to Mr. Rothery in the Wreck Commissioner's Court.

He was at one time President of the London Mathematical Society, of which he was for a long time a member.

The Catalogue of Scientific Papers contains twenty-eight titles under which Mr. Merrifield had published papers between the years 1858 and 1873. He edited many of the text-books of science published by Messrs. Longman, and himself wrote a successful treatise on arithmetic and mensuration in that series. For many years, until prevented by ill health, he conducted unofficially the mathematical part of the May Examinations of the Science and Art Department. He was also, from its foundation, a very active and leading member of the Association for Improvement of Geometrical Teaching.

Mr. Merrifield possessed great literary attainments, being thoroughly well versed in Latin, Greek, French, and Italian. Appended to a translation of his article on Deep Sea Waves, published in the "*Rivista Maritima*," is a foot-note, which, after bearing testimony to the author's extensive knowledge and excellence of style, expresses the satisfaction of the editor at his adding to those qualifications that of "writing correctly our language."

In April, 1882, when in the midst of his work, he was struck by apoplexy. From this he partially recovered; but he suffered another attack on the 18th October, 1883, which resulted in his death.